

FIGURE 1

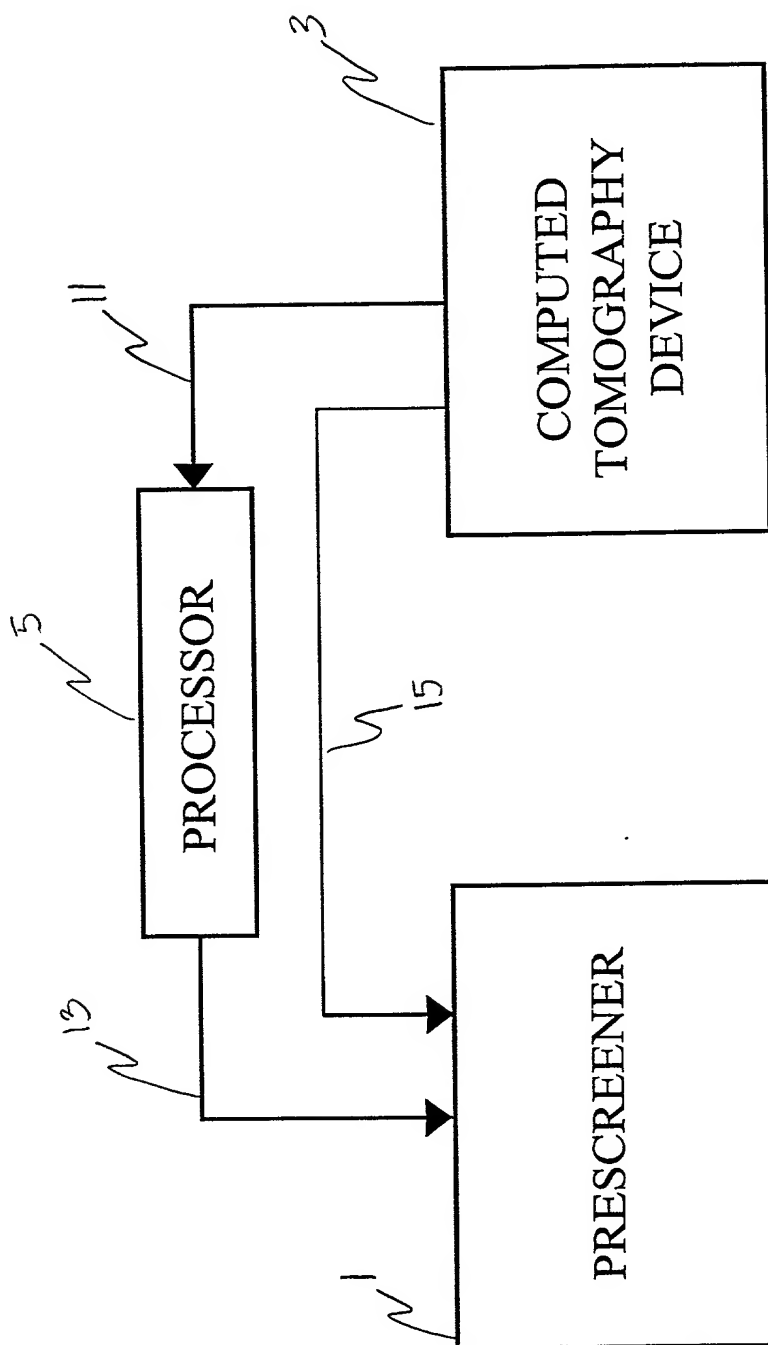


FIGURE 2

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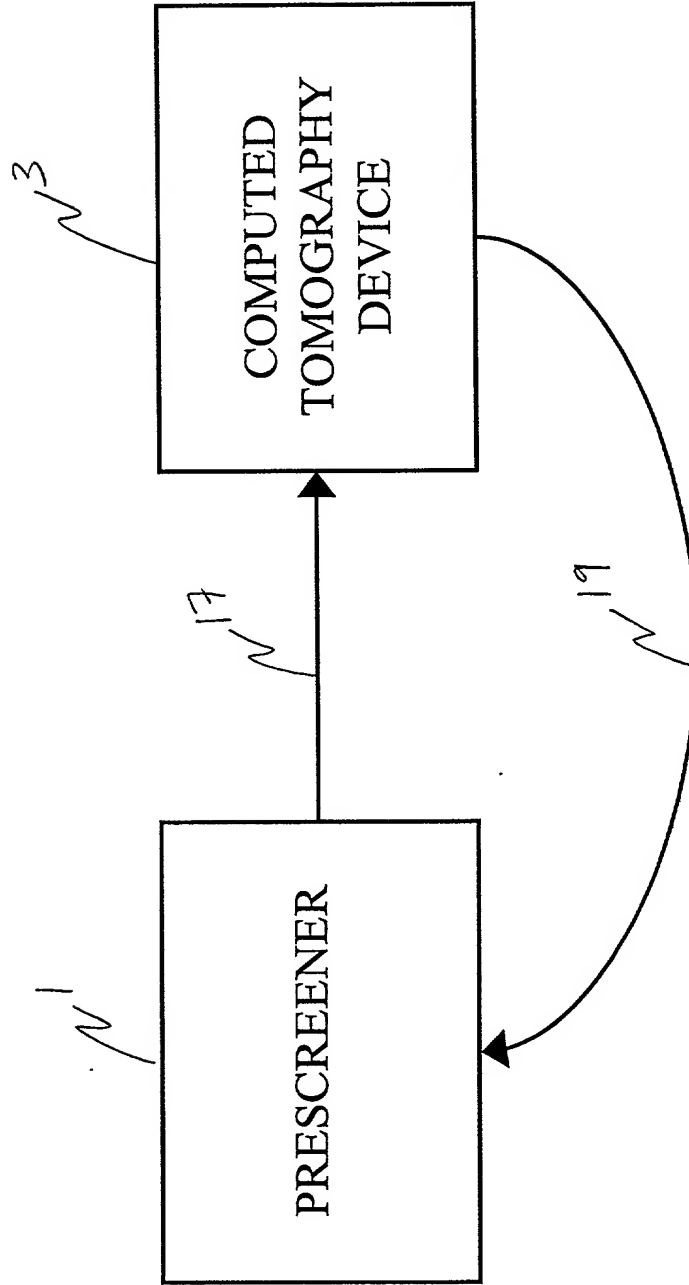


FIGURE 3

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Figure 4

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graph TD
    20{{Load Bag Into Machine}} --> 21[Scan and Analyze Bag Using Dual Energy Prescanner]
    21 --> 23[/Generate Table A containing Zeff, Mass and Confidence Levels for All Objects/]
    23 --> 25[Generate List of Objects Warranting Further Study and Their Locations]
    25 --> 29{Are there any objects (or regions) that require further investigation?}
    29 -- no --> 27{Make Decision}
    29 -- yes --> 31[Move Bag to Location and Acquire CT Image]
    31 --> 33{Is there metal in the vicinity of the Interesting Object?}
    33 -- yes --> 35[Predict Metal Artifacts and Correct the CT Image]
    35 --> 37[Analyze CT Image]
    33 -- no --> 37
    37 --> 39[/Generate Table B containing Densities, Areas, confidences and 3D locations for target objects/]
    39 --> 41[Update Zeff and Mass Using exact 3D Position]
    41 --> 23
    39 --> 27
    39 --> 25
    39 --> 29
    39 --> 31
    39 --> 33
    39 --> 35
    39 --> 37
    39 --> 39
    39 --> 41
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The flowchart illustrates a baggage screening process. It begins with loading a bag into a machine (20), which then scans and analyzes the bag using dual energy prescanner (21). This leads to the generation of Table A (23), which contains Zeff, Mass, and Confidence Levels for all objects. From Table A, a list of objects warranting further study is generated (25). A decision is made (29) on whether any objects or regions require further investigation. If no, the process moves to a decision point (27) to take appropriate action (e.g., move bag out of machine, reconcile with passenger, call bomb squad, etc.). If yes, the bag is moved to a location and a CT image is acquired (31). A decision is then made (33) on whether there is metal in the vicinity of the interesting object. If yes, metal artifacts are predicted and the CT image is corrected (35). The CT image is then analyzed (37), leading to the generation of Table B (39), which contains densities, areas, confidences, and 3D locations for target objects. Table B is used to update Zeff and mass using exact 3D position (41), which then feeds back into Table A (23). Table B also feeds back into the decision point (27) and the list of objects (25).

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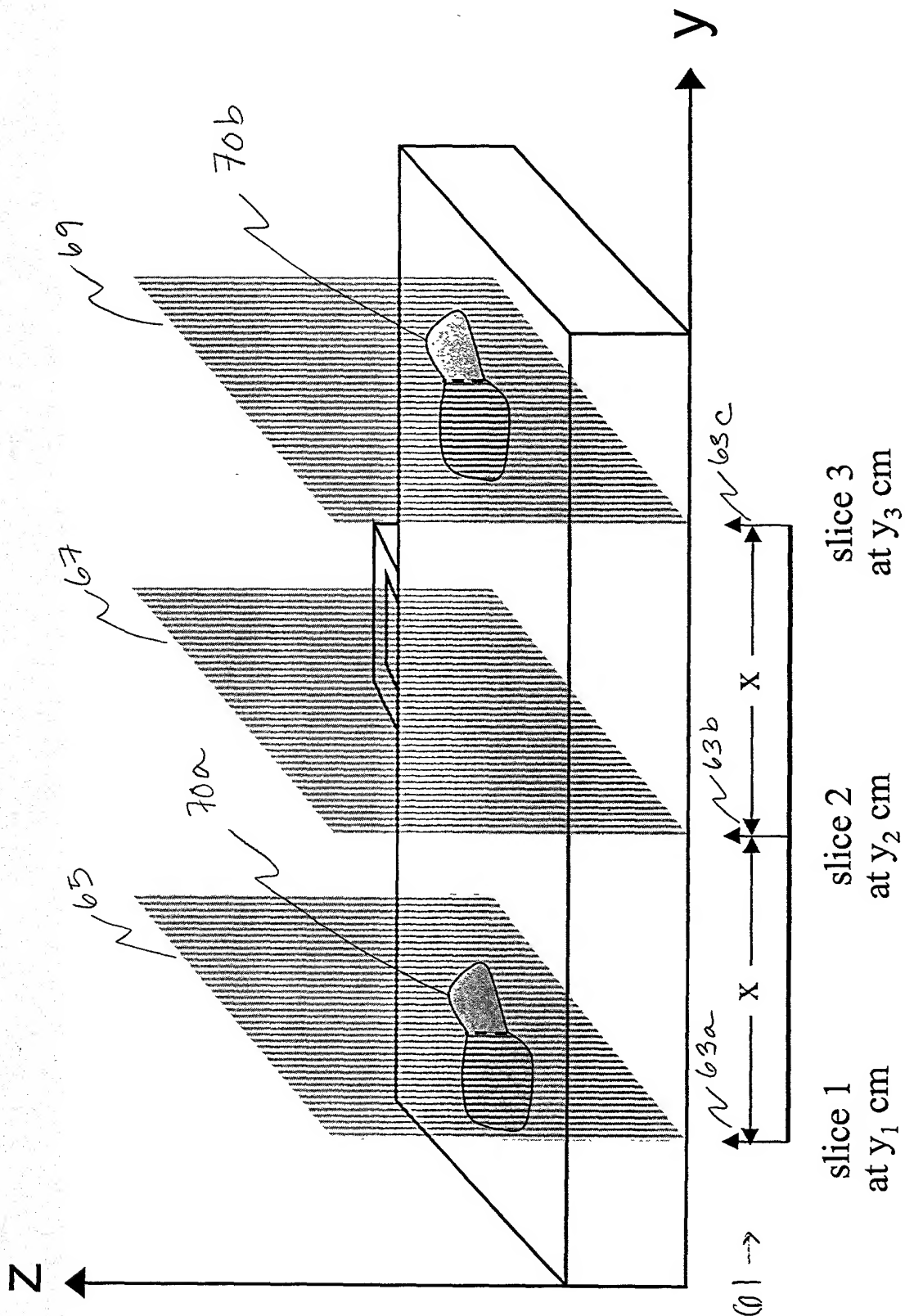


FIGURE 5

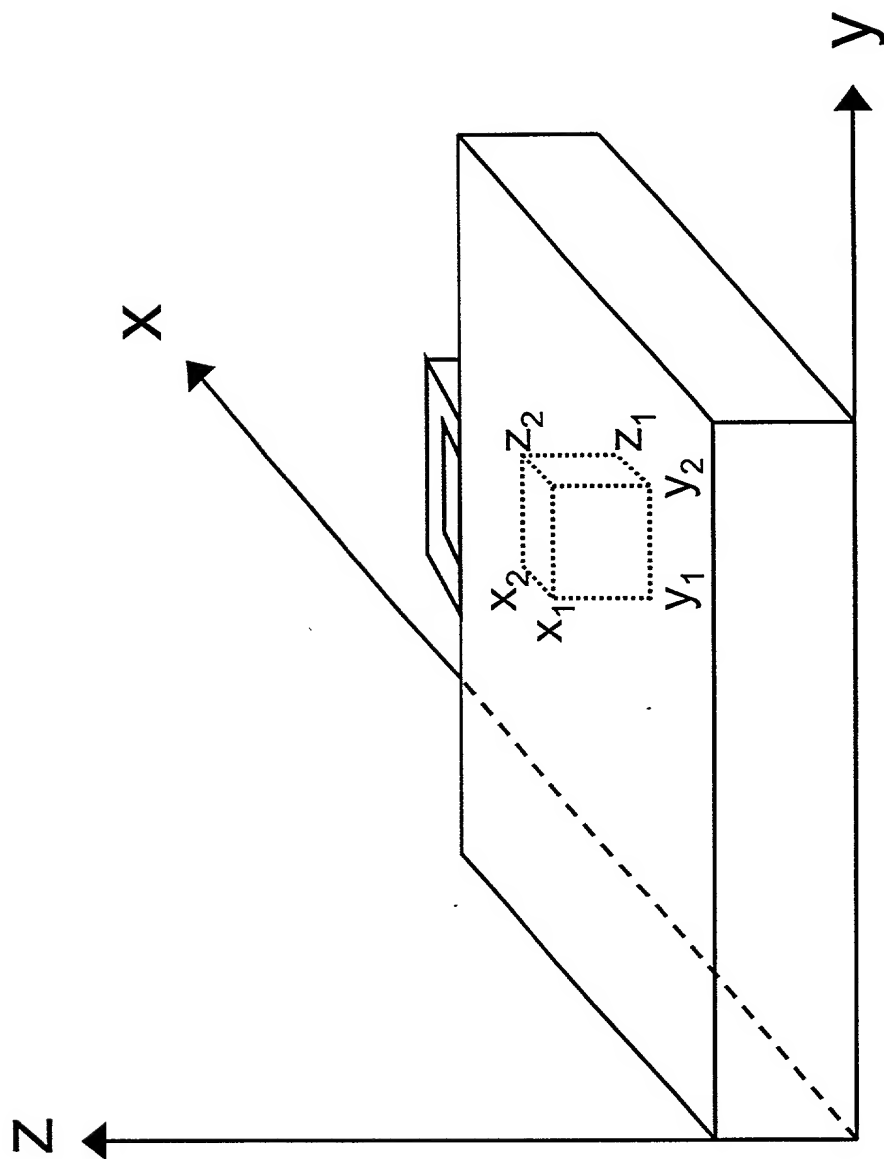


FIGURE 6



Figure 7